City of Biggs
MEMORANDUM

TO: Honorable Mayor and City Council Members

FROM: G. Michael Vasquez, PE – Engineering Staff

DATE: February 28, 2011 Council Meeting, prepared February 21, 2011

SUBJECT: Piping of Valley Gutters

At the request of the City Council and City Administrator, please accept this memorandum as a brief introduction to opportunities and constraints of replacing existing valley gutters with surface piping located at street intersections. This memorandum is intended to produce conversation amongst Council Members and Staff to determine a course of action to repairing valley gutters at some point in the future when funding allows. The City Administrator will provide photos at the Council Meeting for discussion.

It is Staff's understanding that the reason this topic was brought forth for discussion was to develop a solution to minimize the "dips" that are present at a few of the deteriorating valley gutter crossings throughout the City. It is the City's wish to repair and modify the existing valley gutter crossings to provide residents with better vehicular travel. The cause of these "dips" is related to how narrow the existing valley gutters are (2' wide), old age, structural section failure, and older construction practices. Valley gutters were originally installed in the City many years ago to maximize surface drainage, as the City does not have sufficient underground storm drain infrastructure to allow for drainage inlets at all intersections. A newer type of intersection would have a smooth path of vehicular travel in all directions, with proper underground storm drain infrastructure.

Installing piping and asphalt over the top of valley gutters or other types of gutters, as was done in the City of Gridley and City of Colusa, is typically done at locations where "dips" are severe and bottoms of vehicles scrape while crossing intersections. In most cases, this is done where existing curbs are 8"-14" tall, such as in an older downtown area. While installing piping and asphalt over valley gutters to minimize "dips" is effective, the cost to perform the installation is often times more expensive than replacing the existing 2' wide valley gutter with a larger 3' to 5' wide valley gutter. This would allow more width for a smoother, more gradual transition throughout the valley gutter.

Although each location is situation dependent, installing piping and asphalt over an existing valley gutter causes a significant amount of work at the intersection, requiring re-grading of the intersection, as this would change the drainage pattern over the new asphalt. Existing valley gutters would need to be removed to ensure suitable road base material exists. American Disability Act (ADA) changes would also need to be made to ADA ramps to ensure that pedestrians are able to cross the intersection. Other possible problems to consider when performing this type of modification in addition to expense are as follows:

- Maintenance and Pipe Clogging: Piping for this application would have to be smaller, with minimal slope, and would have a higher probability of clogging with even the lightest amount of debris. Public Works Staff would have more work to do.

- Safety: The ends of the pipes would leave a severe drop off that would be a potential hazard to vehicles turning in or out of the intersection. Also, ADA requirements would be difficult to achieve without reconstruction of ramps.

- Aesthetics: This is not a technical item, but Council may want to consider this.

Engineering and Public Works Staff believe that the most financial and functional method to address deteriorating valley gutters would be to keep the existing surface drainage scheme and replace the existing valley gutters with new wider sections.

Existing valley gutter intersection

Potential valley gutter repair (not the same intersection as previous photo)